

wall would be 236 feet, while the floor-space afforded would be only 2,640 square feet; the circular ward, therefore, would give 133 square feet to each bed, the rectangular ward 120 square feet. From the form of the floor, and its greater dimensions, it follows that the beds in a circular ward would be more widely separated from those opposite, owing to the large central area that would be afforded; thus, in an oblong ward 30 feet wide, the distance from the foot of one bed to that of the bed opposite to it would be 18 feet; in a circular ward (61 feet in diameter) it would be 48 feet; the quantity of air between the patients would of course be greater, and the central space might be utilised for dining-tables, tables for dressers and nurses, and other conveniences. From what has been said with regard to floor-space, it necessarily follows that the cubical air-space for each patient would be relatively greater in the circular than in the oblong ward, here supposed; with a height of 15 feet in each case, the oblong ward would give 1,800 cubic feet per patient: the circular would give 1,995 cubic feet.

The ventilation of a circular ward would, it is thought, be easily carried out. Horizontal currents of air would sweep more readily and uniformly around the external surface of a circular than an oblong building. For the purpose of "natural ventilation," every such horizontal movement of the outer air would become available, from whatsoever quarter or side it came. Openings arranged in windows or walls, or both, would admit air on every, or on any desired, side. "Sharp draughts across the wards, down-draughts on the walls opposite and relatively near to open windows, deficiency of movement of the air with certain winds, and the unequal or opposing extracting power of two or more fireplaces would not exist." Mr. Smith considers that it would be advisable to have central extraction-shafts for the removal of foul air, though recognising that some of the apertures in the external wall would usually act as outlets, while others acted as inlets, the particular set discharging either function depending no doubt on the direction of the wind. The warming of the ward would be most advantageously affected by a central source of radiating heat, supplemented where necessary by hot-water pipes around the circumference.

As to the number of patients under one roof, this would very much depend on the purpose for which the hospital was required. One story, where the space covered by the whole building was of no moment, would be the most advantageous arrangement, and in fever hospitals would probably be necessary. But, where land was valuable, two or three such wards as have been described might be built one above the other, forming a circular ward tower, which would contain sixty-six patients. The various wards in the same tower would be reached by a staircase opening into the connecting corridors, and not directly into the wards. In the same way, all the water-closets and ward-offices would be disconnected from the wards themselves, and from excrescences, as it were, from the corridors. The circular form would lend itself very well to an efficient system of ward administration; the central area would form the natural domain of the nurses, who from that coign of vantage would be able with ease to command every patient in the ward, each bed being almost equidistant. Such a ward, too, would be easily kept clean, since it would offer no inaccessible corners to act as traps for dust, scraps, and such like "unconsidered trifles."

All the administrative buildings, the residential and official rooms, the operating and clinical theatres, and the out-patient and dispensary departments, "would be arranged in quadrangular blocks, from which the circular blocks, or ward towers for the in-patients, would be more or less widely detached, being communicated with only by the open or partially open corridors."

With regard to the cost of construction, Mr. Gordon Smith is of opinion, that while the walls would cost rather less to erect than in the case of rectangular walls, the flooring and roof would be more costly; the window sashes, glass, and doors, however, would not need to be curved, and, on the whole, he believes, "that the difference of cost between a circular block of wards, and an ordinary pavilion, for a corresponding number of beds, with equal space per bed, would be but slightly in favour of the straight building." As to the artistic possibilities of a hospital with wards on the circular principle, Mr. Smith expresses himself very decidedly: "in skilful hands," he says, it "would lend itself in the most happy manner to the production of buildings which would undoubtedly be the pride of the towns possessing them," and he instances the tomb of Cecilia Metella at Rome, the Baptistery at Pisa, and the Albert Hall at South Kensington, as proving the favour which circular buildings have found with artists from remote times down to the present day.

At the Medical and Sanitary Exhibition at South Kensington last summer, some of our readers may remember to have seen a drawing made to illustrate Mr. Marshall's system, by Mr. Francis E. Jones,

architect, representing a hospital on the circular ward system, adapted to a confined site such as that which may eventually be available for the University College Hospital. Four circular ward towers occupy the angles of the site, which is, roughly speaking, quadrangular; each tower contains three stories of wards, accommodating 54 patients in each tower; beneath there is an arched basement, and above a glazed day room for convalescents. The centre of the site is occupied by the administrative block, which takes the form of a Maltese cross, and contains all the necessary staircases. The ward towers communicate with the central block by cross-ventilated corridors.*

MEDICAL RUBBING.

Read in the Section of Medicine at the Annual Meeting of the British Medical Association in Worcester, August, 1882.

By J. FLETCHER LITTLE, L.R.C.P.Ed., Ben Rhydding.

MEDICAL rubbing, when skilfully done, is one of the most effective and powerful remedies that we possess. If it is done by ignorant or untrained hands, it is capable of doing immense injury.

Medical rubbing can restore the wasted muscle, can unloose the stiffened joint, can promote the enfeebled circulation, can bring back sensation to the benumbed limb, can soothe the irritated nerves, and can promote digestion and assimilation by causing healthy waste and excretion. The principles of medical rubbing are simple and easily understood, so that any medical practitioner can train a suitable person in a few lessons.

The rubber should be strong and healthy, bright and cheerful, with plenty of energy and intelligence. A stupid lout cannot make a good rubber.

The hands of the rubber should not be too small nor too large. They should not be bony nor clammy, nor horny nor doughy. They should be firm, warm, supple.

The position of the rubber should always be that of perfect ease. No one can rub if they are craning over a patient, or in a cramped or constrained position. The patient must always be placed in such a posture that the rubber is perfectly at his ease. If this is not done the rubber soon tires, uses unnecessary force, hurts the skin, bruises the muscles, and does more harm than good. The position of the patient should also be one of perfect ease. No muscle should ever be rubbed except it is soft, and no joint except the skin over it is relaxed. The skill of the rubber is greatly aided by the science of physicians in placing the muscles and joints in the most suitable position. The patient should be lying down on a low bed or couch, and the rubber sitting close to or standing by him.

The limbs should always be rubbed from the extremities upwards and the trunk from above downwards. The rubbing I am going to demonstrate to you is a combination of what I learnt at Paris amongst Professor Charcot's cases, and at Philadelphia last autumn, when I had the great privilege of seeing a dozen or more of Dr. Weir Mitchell's cases undergoing what is now called the "rest cure."

It is a combination of the "skin friction," "French massage," "muscle rolling," and "kneading," "deep thumbing," and "medical calisthenics," or the Swedish movement cure, which I shall fully explain in the demonstration.

Many attempts have been made to supersede the human rubber; and if any of you are in London, I should advise you to visit the Zander establishment above the Soho Bazaar, Soho Square, Oxford Street; where you will see some series of most costly and ingenious machines for doing what any medical rubber can do with his own hands.

Dr. Roth and his son, Mr. Bernard Roth, have shown what the concentrated will can do when brought to bear on an enfeebled muscle. Gentlemen, you can now combine every advantage of all these systems by the simple means I shall now show you.

* A ground plan and full description will be found in the *London Medical Record*, for July 15th, 1881, page 296.

"LA JOIE FAIT PEUR."—A curious incident is reported in connection with the recent accident to the Great Eastern Railway express train. A woman living near Ely, whose daughter was in the train, was very much troubled about her safety; and, on her reaching home with but little injury, the mother became so overjoyed, that she was seized with an apoplectic fit, and has since died.